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ABSTRACT

Evaluating the Writing To Read program (a computer-based reading/writing program developed by IBM for kindergarten children), a study examined the impact of the program on student achievement in the District of Columbia Public Schools. Writing To Read teaches students 42 phonetic sounds in the context of words that allow students to begin writing and illustrating their writings immediately. Phonetic spelling is used in writing to encourage students to use the range of words available in their vocabularies, and daily writing occurs without negative feedback. Metropolitan Achievement Test (MAT) scores were used from the 1986-87 school year for 86 kindergarten and 130 first grade students in the program, and 155 kindergarten and 152 first grade students in control groups. Writing samples were collected from the treatment and control groups as indicators of student writing ability during the fall and spring. Teacher attitudes and experiences relative to the program were also collected and evaluated using a teacher-survey instrument. Findings indicated that kindergarten students who participated in the Writing To Read program made significant gains in reading and language achievement, and students in the program scored significantly higher on reading achievement than did the comparison group. First grade students in the program did not differ significantly from comparison group reading achievement scores. (Twenty-two tables are included, and 13 references are appended.) (MM)

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ACHIEVEMENT IN THE WRITING TO READ PROGRAM: A COMPARATIVE EVALUATION STUDY

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January 1988

CS211141

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DISTRICT OF COLUMBIA PUBLIC SCHOOLS

ACHIEVEMENT IN THE WRITING TO READ PROGRAM: A COMPARATIVE EVALUATION STUDY

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EXECUTIVE SUMMARY

The Writing to Read program (W2R) is a computer-based reading/writing program developed by IBM for kindergarten children. Kindergarten students are taught forty-two (42) phonetic sounds (phonemes) in the context of words that let them begin writing and illustrating their writings immediately. Phonetic spelling is used in writing to encourage students to use the range of words available in their vocabularies. First grade students in the W2R schools are exposed to a DCPS based extension of the kindergarten W2R program but have either limited or no access to computers, typewriters or other technology.

This evaluation study endeavored to answer the question:

What is the impact of the Writing to Read program on student achievement in DCPS ?

Specific questions asked to help us understand the impact of W2R on student achievement were:

I. How do selected 1986-87 W2R students perform on measures of reading and language achievement in comparison with a no treatment group by the end of the school year ?

II. How do selected 1986-87 W2R students perform on measures of writing ability in comparison with a no treatment group by the end of the school year ?

III. What are Teacher assessments of student progress relative to the W2R program?

IV. How do the objectives and performance indicators related to the W2R program relate to the objectives and indicators of the DCPS Competency Based Curriculum in the area of writing?

The findings indicate that:

1. Kindergarten Writing to Read students scored significantly higher on reading achievement than did the comparison group.

2. First grade Writing to Read students did not differ from comparison group students in language and reading achievement.

3. Kindergarten and first grade Writing to Read students made greater gains in writing ability and stage of writing development than did comparison group students.

4. Independent raters demonstrated a high level of consistency in evaluating the stage of development of writing samples.

5. Kindergarten and first grade Writing to Read Teachers documented the skills mastered and the degree of growth for W2R program students.

6. The independent consultant indicated the need to correlate W2R instructional activities with skills in the Competency Based Curriculum.

7. The independent consultant documented the need for articulation and planning between the curriculum directors for reading and English and the W2R coordinator.

The findings indicate kindergarten students participating in the Writing to Read program made significant gains in reading and language achievement as measured by the Metropolitan Achievement Test. First grade differences in achievement were not-significant. The lack of significance may be due in part to the emphasis at first grade on student mastery of the skills outlined in the Competency Based Curriculum (CBC) and variance in the reinforcement of the skills acquired in the Writing to Read program at the first grade level. This conclusion is supported by the findings of Dr. Mattie C. Williams who served as a curriculum consultant for this study and the DCPS writing evaluation study. Participating Teachers documented the progress made by most Writing to Read program students. Both the outside consultant and the evaluator agree that a need exists for articulation and correlation between the Writing to Read program and the CBC in reading and writing.

Recommendations

Draft copies of the evaluation report were delivered to Supervisors, Principals and Teachers, selected by the evaluator, for persual. Representatives of the group that reviewed the report were invited to attend a meeting held at Young Elementary School to generate recommendations based on the findings of the evaluation report. Among the eighteen persons attending the meeting were the Supervising Directors of English and Reading; the Assistant Director of Reading; two Regional Supervisors; two Principals from schools involved in the study (one with Writing to Read and one without); one Early Childhood Peer Assistant Teacher; and five Teachers (three Teachers from schools with Writing to Read and two without). Attending from the Writing to Read program were the Coordinator, the Consultant and the two Resource Teachers.

The following Recommendations were generated based on the findings of the evaluation report.

1. The relationship between the instructional skills and activities provided through the Writing to Read program and the skills outlined in the Competency Based Curriculum needs to be articulated to instructional personnel using the Writing to Read program.

   Presently, achievement in the Writing to Read program as it is measured by standardized achievement instruments indicates no difference exists between the performance of Writing to Read and comparison group first grade students. Persons generating this recommendation at the Young School Meeting indicated one of the reasons for the lack of difference is that some Principals and Teachers involved with Writing to Read experience difficulty understanding the relationship between the CBC skills and objectives and the objectives of the Writing to Read program. They see the two as unrelated rather than as complementary programs. Since Teachers are evaluated in part based on their ability to progress through the CBC, they tend to emphasize skills on the CBC checklist (especially since promotion is based on student progress on CBC mathematics and reading objectives. Some felt that the promotion standard should be based on performance in mathematics, reading and writing). It would follow that Writing to Read first grade student performance on achievement measures would not be different from comparison students if the materials and training provided to participating first grade Teachers is not being fully implemented. The participants attending the Young School Meeting recommended that staff development be provided for Principals and Teachers which demonstrates how the Writing to Read program reinforces CBC skills and which provides strategies for incorporating Writing to Read activities into the skills and objectives provided by the CBC without limiting instructional opportunity in other subject areas.

2. Articulation and collaboration needs to be structured and reinforced between the Writing to Read program and the English and Reading Departments to foster cohesiveness among the three programs.

   More articulation needs to take place between the Writing to Read program and the English Department. The Writing to Read program staff has done an outstanding job of enhancing the writing development of kindergarten and first grade students that is being recognized by educators across the country. With the onset of the Writing Initiative, every elementary school Teacher could benefit from learning how to apply the Writing Scale developed by the Writing to Read program in DCPS to guage the ability and level of writing development of young children. Collaboration and articulation would also aid both groups in spreading the word to elementary schools through presentations and workshops with system Writing Coordinators, Principals and

Teachers. The English Department has a network already in place that would facilitate this (eg., Writing Coordinators, Language Arts Resource Teachers, the Writing Initiative Newsletter, etc.). In order to promote cohesiveness between activities related to the Writing to Read program and the writing curriculum, teachers presently implementing the Writing to Read program should be considered when forming curriculum development teams.

The Writing to Read program and the Reading Department have worked together previously to correlate the activities contained in the Writing to Read program with the CBC reading objectives. The two should work together to share the components of the Writing to Read program with Reading Resource Teachers and other appropriate personnel in various forums provided by the Writing to Read program and the Reading Department. In addition, Writing to Read program activities and objectives should be reviewed in light of recent modifications in the reading curriculum.

3. An awareness strategy needs to be established to share information on the skills developed by the Writing to Read program across schools and primary grade levels.

   This recommendation encourages more frequent articulation and collaboration between kindergarten and first grade Writing to Read Teachers in each school as well as planning and sharing with Teachers in grades two through six (with strategies provided for reinforcing learned writing skills). A concerted effort should also be provided for Teachers experienced with the Writing to Read program to share with new program participants in formal and informal settings so new participants approach the program with realistic expectations. This information should also be shared in forums involving non-participating schools, Principals and Supervisors so knowledge of the Writing to Read program can be expanded. The ultimate goal of this recommendation is to develop a mechanism to share and build upon the skills developed by the Writing to Read program with others.

ACHIEVEMENT IN THE WRITING TO READ PROGRAM: A COMPARATIVE EVALUATION STUDY

Educational technology in the classroom has developed beyond the use of audio-visual equipment and television. Millions of dollars are spent annually developing and marketing educational programs for use with the new educational medium: microcomputers. The Writing to Read program (W2R) is one of the educational programs that has been developed which uses microcomputers as an educational medium.

John H. Martin (1982) developed W2R as a writing program because he believed teaching kindergarten children to write was a better introductory process to reading than was the traditional strategy which emphasized reading before writing. International Business Machines (IBM) adapted Martin's program and field tested the W2R program as a writing program that would improve reading during 1982-83 using 10,000 kindergarten and first grade students.

The District of Columbia Public Schools (DCPS) had fifteen schools involved in the original pilot program (1982-83) sponsored by IBM for Writing to Read. The fifteen pilot schools were evaluated by Research and Evaluation in 1985. Kindergartners and first grade students in twenty-seven (27) schools participated in W2R during 1985-86 (2,812 students from 113 classrooms). Each year, the W2R program has expanded to additional schools. During 1987, students from 43 schools in DCPS were involved in the W2R program.

Description of the Writing to Read Program

The W2R program consists of a computer-based writing program, correlated work journals, typewriters, tape recorders, games, supplemental language development activities and free writing. Kindergarten students are taught forty-two (42) phonetic sounds (phonemes) in the context of words that let them begin writing and illustrating their writings immediately. Phonetic spelling is used in writing to encourage students to use the range of words available in their vocabularies. Daily writing occurs without negative feedback.

The first six to eight weeks of the W2R program involves the development of kindergarten readiness skills such as awareness of letter sounds, blending, letter recognition, keyboard familiarity and letter formation. Following language readiness, kindergarten students are scheduled into a language development center (the Writing to Read Center). A computer tutorial introduces the students to two or three words for each of the 42 phonetic sounds. At the same time, kindergarten students are

provided with classroom writing instruction that focuses on blending, word study and free expression of ideas. Factors usually emphasized at this level, such as penmanship and correct spelling, are given little attention. Students phonetically spell the words they speak and hear. First grade students in the W2R schools are exposed to DCPS based extension of the kindergarten W2R program but have had either limited or no access to computers, typewriters or other technology.

Writing is the focus of the language arts program. Wherever possible the skills and processes the children are taught result in written products. Initially they write for free expression, but as they advance in writing they demonstrate skill development through written products which take on a variety of formats (e.g., stories, poetry and reports). In addition to their regular writing assignments, the children are asked to write on a designated theme or topic three times a year. The products are submitted to the W2R staff for analysis of writing development.

Teachers at participating schools attend staff development sessions to learn a phonetic approach to teaching writing and a host of writing strategies. They are also trained relative to the stages through which children progress as they develop writing skills. Generally, two to five days per year have been scheduled for Teacher staff development.

Statement of the Problem

Data from the 1985 and 1986 evaluation studies conducted by Research and Evaluation provide evidence that W2R program students produce better writing samples at a more advanced level of skill and higher achievement in reading and language than does a comparison group at the kindergarten (McBeath & Arenas, 1985; McBeath, 1986) and first grade levels (McBeath, 1986). Evaluation of W2R during 1987 will assist in making decisions relative to program implementation in all schools that have kindergarten classes. Such data may impact on whether a DCPS developed W2R model should be implemented at the first grade level. Therefore, this evaluation study will endeavor to ask the general question:

What is the impact of the Writing to Read
program on student achievement in DCPS ?

Specific questions asked to help us understand the impact of W2R on student achievement were:

Evaluation Questions

I. How do selected 1986-87 W2R students perform on measures of reading and language achievement in comparison with a no treatment group by the end of the school year ?

II. How do selected 1986-87 W2R students perform on measures of writing ability in comparison with a no treatment group by the end of the school year ?

III. What are Teacher assessments of student progress relative to the W2R program?

IV. How do the objectives and performance indicators related to the W2R program relate to the objectives and indicators of the DCPS Competency Based Curriculum in the area of writing?

A focus on the four evaluation questions should give us a vision of the impact of the Writing to Read program on the achievement of students who have experienced the program and the relationship of the W2R program to the DCPS writing curriculum strand. This information will assist stakeholders in making recommendations and decisions relative to the W2R program and in formulating a systemwide strategy for directing W2R program expansion and services.

Methodology

The principal student data source for this study were scores on the Metropolitan Achievement Test (MAT), Form L for total reading and total language and stages of writing ability data collected during the 1986-87 school year for selected kindergarten and first grade students in the W2R and comparison groups. The MAT pre-test measures were the pre-primer level for kindergarten and the primer level for first grade. The MAT post-test measures were the primer for kindergarten and the primary 1 for first grade. Data for this sample enrolled in the DCPS during 1986-87 were collected during the Spring of 1987 and were analyzed using inferential statistical procedures that detect differences between treatment and control groups.

Writing samples were collected from treatment and comparison group students at the kindergarten and first grade levels as indicators of student writing ability during the fall and spring. The writing samples were rated by a cadre of trained educators in terms of stage of writing development using a writing scale developed by Dr. Deloris Saunders, consultant for Writing to Read.

An independent curriculum consultant in the area of language arts was hired to correlate and evaluate the match between the objectives and indicators of the W2R program and the DCPS writing curriculum strand as defined in the Competency Based Curriculum.

Teacher attitudes and experiences relative to the W2R program were collected and evaluated through the administration of an end of year Teacher survey instrument.

Data Analysis

Statistical analysis procedures appropriate to the data collected (as noted under methodology) were used to analyze the data. An alpha level of .05 was set as the level of significance for this study. Analysis of Covariance and T-tests were used to evaluate group differences in student

performance on reading and language development indicators and writing ability, respectively. Frequencies were generated for the Teacher survey.

FINDINGS

Data from the MAT pre and post achievement measures, the pre and post writing samples, the kindergarten and first grade Teacher surveys and the curriculum correlation are presented in this section using the evaluation questions as headings for each set of findings.

Reading And Language Achievement

I. How do selected 1986-87 W2R students perform on measures of reading and language achievement in comparison with a no treatment group by the end of the school year ?

From pre- to post-test there was an increase in the average score for each treatment group (Tables 1 and 2). The greatest difference occured in the kindergarten experimental group on the reading test. For this group there was an average increase of almost 70 points. The smallest increase occured in the First grade experimental group on the language test with an average increase of about 12.5 points. Correlated T-tests were done to determine the statistical relationship between the pre- and post-test assessments among the different groups (Tables 1 and 2).

Table 1

Descriptive Statistics and Correlated T-Test Data from Pre- to Post-Test in Reading and Language Achievement By Treatment Group

Kindergarten

	Control Group (N=155)					
Test	Pre-Test Mean	Post-Test Mean	Difference	T-Value	2 Tail Probability	Corr.
Reading	415.85 75%ile (S.D.=51.13)	468.70 82%ile (S.D.=44.62)	52.85	15.11	<.001	.59
Language	480.91 66%ile (S.D.=39.45)	513.64 83%ile (S.D.=47.80)	32.73	10.12	<.001	.59
	Writing to Read Group (N=86)					
Test	Pre-Test Mean	Post-Test Mean	Difference	T-Value	2 Tail Probability	Corr.
Reading	399.70 64%ile (S.D.=38.21)	470.41 84%ile (S.D.=54.20)	70.71	16.82	<.001	.70
Language	473.73 66%ile (S.D.=46.27)	494.51 76%ile (S.D.=37.02)	20.78	4.12	<.001	.39

Table 2

Descriptive Statistics and Correlated T-Test Data from Pre- to Post-Test in Reading and Language Achievement By Treatment Group

First Grade

Test	Pre-Test Mean	Post-Test Mean	Difference	T-Value	2 Tail Probability	Corr.
Control Group (N=152)						
Reading	476.41 72%ile (S.D.=54.59)	527.30 66%ile (S.D.=51.23)	50.89	17.31	<.001	.77
Language	523.69 75%ile (S.D.=45.85)	544.09 82%ile (S.D.=43.13)	20.40	6.83	<.001	.66
Writing to Read Group (N=130)						
Reading	511.86 92%ile (S.D.=60.40)	542.28 (S.D.=39.63)	30.42	8.17	<.001	.71
Language	544.44 84%ile (S.D.=39.99)	556.95 88%ile (S.D.=48.67)	12.51	3.82	<.001	.66

The analyses indicated that for each grade level and for both control and experimental groups, the differences between pre- and post-test scores were highly significant. In each analysis the 2-tail probability was less than .001. The correlation coefficients between the pre- and post-test scores were relatively high. The highest correlation coefficient was .77 for the pre-reading first grade control and the lowest was .39 for the pre-language kindergarten experimental group (Tables 1 and 2).

The Analysis of Covariance (ANCOVA) statistical procedure was used to detect differences between experimental (W2R) and control groups on each of the post-tests for each grade level (Tables 3 and 4). ANCOVA was used to control for pre-test differences between the experimental and control groups so that post test gains could be analyzed more accurately. For kindergarten students, there was a significant difference favoring the experimental group on post-reading scores. A significant difference favoring control group kindergarten students was found on post-language scores. For the first grade students, differences between the control and experimental groups on post-reading and post-language scores were not-significant.

Table 3

Analysis of Covariance Tables For Kindergarten:
Post-Test Analyses

Reading Achievement

Source	SS	df	MS	F
Treatment	7552.88	1	7552.88	5.15*
Explained	207851.66	2	103925.83	70.95*
Total	556475.66	240		

Language Achievement

Source	SS	df	MS	F
Treatment	12802.41	1	12802.41	8.80*
Explained	142310.74	2	71155.37	48.90*
Total	488626.60	240		

*$p < .05$

Table 4

Analysis of Covariance Tables For First Grade:
Post-Test Analyses

Reading Achievement

Source	SS	df	MS	F
Treatment	2295.83	1	2295.83	2.31
Explained	337684.25	2	168842.12	170.11*
Total	614606.07	281		

Language Achievement

Source	SS	df	MS	F
Treatment	150.70	1	150.70	0.13
Explained	262807.94	2	131403.97	109.37*
Total	598023.87	281		

*p < .05

II. How do selected 1986-87 W2R students perform on measures of writing ability in comparison with a no treatment group by the end of the school year ?

Table 5 summarizes the growth of student writing ability by grade level and treatment groups across 1986-87. In all instances, student growth in terms of the stage of writing ability was significant at the .0001 level of confidence. Students advanced in terms of the level of skill in writing from the collection of the pre-writing sample to the post-writing sample.

Table 6 compares the level of writing ability of students at the end of the school year by grade level. Writing to Read program students made significant advances in terms of stage of writing ability at kindergarten and first grade ($p < .0001$) in comparison with the control group.

Table 7 summarizes the reliabilty of the ratings of student placement in one of the ten stages of writing development using the Spring writing samples. The ratings by trained educators indicate a high level of scorer reliability (agreement) overall (88%).

Table 5

Pre-Post Writing Ability Data By Grade Level and Treatment: 1986-87

Kindergarten

Group	Mean	# of Cases	T-Value	2-Tail Prob
Writing to Read/ K				
Pre	2.58	224	28.70	.0001
Post	5.96			
Control Group/ K				
Pre	2.11	156	17.76	.0001
Post	3.19			

First Grade

Group	Mean	# of Cases	T-Value	2-Tail Prob
Writing to Read/ 1				
Pre	4.43	231	23.94	.0001
Post	6.99			
Control Group/ 1				
Pre	3.18	211	14.78	.0001
Post	3.96			

Table 6

Comparison of Growth in the Stages of Writing
By Grade Level and Treatment Group

Treatment		Mean	# of Cases	T-Value	2-Tail Prob.
K	Control	3.19	156	15.40	<.0001
	Exp.	5.96	224		
1st.	Control	3.96	211	21.03	<.0001
	Exp.	6.99	231		

Table 7

Reliability of Ratings of Writing Ability/Stages

	Number of Identical Ratings	No. Ratings Differing By One Point	No. Ratings Differing By More Than One Point
K	81% (N = 71)	9% (N = 8)	10% (N = 9)
1	95% (N = 95)	3% (N = 3)	2% (N = 2)
Total	88% (N = 166)	6% (N = 11)	6% (N = 11)

11

Teacher Assessments of Student Progress

III. What are Teacher assessments of student progress relative to the W2R program?

Kindergarten Survey

This section summarizes the results from the kindergarten and first grade Teacher surveys relative to student progress in the Writing to Read program. Surveys were mailed to each Writing to Read Teachers at schools included in the evaluation study during May 1987 (thirty-one kindergarten and twenty-nine first grade Teachers). All of the Teachers returned completed surveys after a follow-up letter was mailed. For kindergarten classes that participated in the Writing-To-Read Program there was a mean of 24 students per class. Sometimes students corrected their work without erasing and edited their own writing. As indicated by the table, students frequently practiced writing and used their own thoughts and ideas but only corrected and often edited their own writing (Table 8).

Table 8

Students' Current Performance

Question	Avg. Response on a scale from 1-5*
a) Students practice writing daily	4.9
b) Students write using own thoughts and ideas	4.6
c) Students correct written work without erasing	3.9
d) Students edit their writing	3.8

Thirty-two percent of the kindergarten students wrote sentences consisting of between eight and eleven words (Table 9). As many as 36% of the students used three syllables in the words they used (Table 10). The highest percentage of students (24%) was in the 8th stage of writing (Table 11).

* 5=always, 4=often, 3=sometimes, 2=rarely, 1=never

Table 9

The Number of Sentences Used for Stories

Number of Sentences Used for Stories	% of Students Using Number of Sentences
1-3	16%
4-7	21%
8-11	32%
12 or more	31%

Table 10

The Number of Syllables Used in Words

Number of Syllables in Words	Percentage of Students
one	22%
two	35%
three	36%
four	7%
five	0%

Table 11

The Percentage of Students in Each of the 10 Stages of Writing

10 Stages of Writing	% of Students at Each Stage
1	6%
2	16%
3	8%
4	6%
5	8%
6	12%
7	13%
8	24%
9	3%
10	3%

All of the Teachers agreed that students learned well from the program, and that they themselves enjoyed the program. Also, the Teachers agreed that they were committed to the program and were comfortable with its phonetic spelling emphasis (Table 12).

Table 12

Responses to Writing Questions

Questions	Avg. Response to Questions on a Scale from 1-5*
a) Students learn well from the Writing to Read Program	4.4
b) I enjoy using the Writing to Read Program	4.3
c) I am committed to the Writing to Read Program	4.3
d) I am comfortable with the phonetic spelling emphasis of the Writing to Read Program	4.5

* 5=strongly agree, 4=agree, 3=neutral, 2=disagree, 1=strongly disagree

The kindergarten Teachers reported at least half of the students used a typewriter at least sometimes. The students frequently used the parts of the typewriter correctly (Table 13).

Table 13

Responses to Typing Questions

Questions	Avg. Response on a Scale from 1-5
a) How often do students use the typewriter?	3.6*
b) How many students use the typewriter?	4.3**
c) How many students put in their own paper?	4.4**
d) How many students use the space bar correctly?	3.6**
e) How many students use the upper/lower case key?	3.8**
f) How many students use the on/off switch by themselves?	4.4**
g) How many students use the return key?	4.1**

* 5=always, 4=often, 3=sometimes, 2=rarely, 1=never
** 5=all, 4=most, 3=about half the time, 2=a few, 1=none

Most of the students used the typewriter between three and four times per week (Table 14).

Table 14

Times Per Week Typewriter is Used

Times Per Week	Frequency of Teacher Responses
1	2
2	3
3	7
4	5
5	1

The students in most cases did their writing in longhand before they used the typewriter (Table 15).

Table 15

Students that Write Before Using Typewriter

% of Student Stories that are Written Longhand Before they are Typed	% of Student Stories that are Typed Only
99%	1%

Most of the students were at the third cycle or above (Table 16).

Table 16

Students Currently at Each of the 10 Cycles

10 Cycles	# of Students in Each Cycle
1	0
2	9
3	18
4	20
5	22
6	21
7	30
8	32
9	32
10	32

First Grade Survey

Similar to the kindergarten Teachers, the first grade Teachers reported, on the average, students practiced writing and used their own thoughts and ideas often, and sometimes corrected their own work without erasing and edited their writing (Table 17). Each of the first grade classes participating in the program averaged 24.1 students per class.

Table 17

Students' Current Writing Performance

Question	Avg. Response on a Scale from 1-5
a. Students practice their writing daily.	4.8
b. Students write using their own thoughts and ideas.	4.6
c. Students correct their own work without erasing.	3.5
d. Students edit their writing.	3.6

Sixty percent of the students used between 4 and 11 sentences per story (Table 18). In addition, a total of sixty-two percent of the students used between two and three syllables per word (Table 19).

Table 18

The Number of Sentences Used for Stories

Number of Sentences Used for Story	% of Students Using Number of Sentences
1-3	8%
4-7	21%
8-11	39%
12 or more	32%

Table 19

Number of Syllables Used in Words

# of Syllables Used in Words	% of Students
one	17%
two	31%
three	31%
four	17%
five	4%

The highest percentages of students were in stages 5, 7, 8, and 10 of writing (Table 20). Most of the Teachers agreed students were benefitting from the program, that they themselves enjoyed teaching writing, and that they were committed to the writing program. However, the Teachers, on the average, were neutral about being comfortable with the phonetic spelling emphasis of the program (Table 21).

Table 20

The Percentage of Students in Each of the 10 Stages of Writing

10 Stages	% of Students at Each Stage
one	1%
two	2%
three	3%
four	8%
five	10%
six	9%
seven	12%
eight	21%
nine	9%
ten	25%

Table 21

Responses to Writing Questions

Question	Avg. Response on a Scale from 1-5*
a. Students learn well from your Writing to Read follow-up program	4.2
b. I enjoy teaching writing	4.5
c. I am committed to the writing program	4.6
d. I am comfortable with the phonetic spelling emphasis of the program	3.9

* 5=strongly agree, 4=agree, 3=neutral, 2=disagree, 1=strongly disagree

The Teachers agreed that the writing lessons were effective with students and were helpful in the development of their own lessons (Table 22).

Table 22

Responses to Writing Lesson Questions

Question	Avg. Response on a Scale from 1-5*
a. I found the writing lessons to be effective with students	4.6
b. I found the writing lessons to be helpful in developing my own lessons	4.4

* 5=strongly agree, 4=agree, 3=neutral, 2=disagree, 1=strongly disagree

Curriculum Analysis

IV. How do the objectives and performance indicators related to the W2R program relate to the objectives and indicators of the DCPS Competency Based Curriculum in the area of writing?

Dr. Mattie C. Williams, Bureau Chief for Language Arts in the Chicago Public Schools served as an outside consultant for the component of the evaluation study that involved an analysis of the writing strand of the English curriculum. Among the questions that Dr. Williams was asked relative to writing were questions relative to relationship of the Writing to Read program to the writing curriculum. Her responses to those questions and recommendations are summarized below.

"How do the activities promoted in the Writing to Read program correlate with the primary level writing tasks indicated in the curriculum guide?"

Response

"The activities in the Writing to Read program seem to exceed those activities delineated in the primary curriculum in terms of considering writing as a process. Writing is the focus of the language arts program. Despite the fact that Writing to Read program uses the phonetic approach to language arts instruction, language development is of primary concern, and instruction emphasizes reading, writing, and the use of the technological advantages of the computer. Ten writing stages with their corresponding criteria have been identified for evaluating students' writing."

"Does the Writing to Read program impede or promote student ability to write ?"

Response

"Data from the Educational Testing Service (ETS) evaluation of the Writing to Read program of July 1984 and the Writing Scale for Young Children developed for the District of Columbia by Dr. Deloris M. Saunders and Ms. Thelma Michael substantiate the fact that the program promotes students' ability to write."

"Since Writing to Read will be placed in most schools with kindergarten and first grade students within five years, what adjustments in the writing curriculum need to be made to accomodate student writing skills at the primary level?"

Response

"The writing curriculum should be revised to reflect the outcomes that emerge through the implementation of the Writing to Read program. A greater emphasis should be placed on writing as a process-to-product entity.

The curriculum should be modified to accomodate the deficits and to provide for the increased proficiency of those students who are participating in the Writing to Read program."

Recommendations

"It seems imperative, therefore, that--

- Appropriate staff within the Department of Curriculum and the coordinator of the Writing to Read program set up articulation sessions so that there is an integration of both curricula.
- The objectives and writing strategies of the Writing to Read program be correlated with the objectives and production activities of the regular program of instruction.
- All activities of the Writing to Read program be an integral part of the curriculum."

Discussion

The findings indicate that kindergarten students participating in the Writing to Read program made significant gains in reading achievement but not in language achievement as measured by the Metropolitan Achievement Test. First grade differences in achievement were not-significant. The lack of significance at grade one may be due in part to the emphasis at first grade on student mastery of the skills outlined in the Competency Based Curriculum (CBC), the higher skill level of the Writing to Read program in relationship to the skills measured by the CBC and variance in the reinforcement of the skills acquired in the Writing to Read program. This conclusion is supported by the findings of Dr. Mattie C. Williams who served as a curriculum consultant for this study and the DCPS writing evaluation study. Dr. Williams indicated:

> ... activities in the Writing to Read program seem to exceed those contained in the primary curriculum in terms of considering writing as a process... The writing curriculum should be revised to reflect the outcomes that emerge through the implementation of the Writing to Read program.

Dr. Williams recommended that coordination occur between the Supervising Directors of English and Reading and the Writing to Read program coordinator to facilitate integration of the higher level skills acquired in the Writing to Read program and to encourage curriculum correlation.

Both the Writing to Read and the comparison group children made significant achievement gains from the pre- to the post-test during the school year. At the kindergarten level, the mean pre-test performance of Writing to Read children was lower in reading and language. At first grade, comparison group children yielded lower pre-test scores than did the Writing to Read children. However, the mean pre-test performance of first grade participants in the Writing to Read program was thirty-five (35) scale score points higher in reading and twenty-one (21) points higher in language than the performance of the control group. The post-test scores of W2R first graders was also higher than those of the control group though not-significant. In all but one instance (kindergarten reading), the group with the lowest pre-test scores made the greatest gains in achievement. Regression towards the mean might have been a factor that suppressed the test performance of Writing to Read program students. Efforts were made to statistically control for pre-test differences by use of the Analysis of Covariance statistical procedure.

In terms of growth in the area of writing ability, Writing to Read children made significantly greater growth at grades K and one when compared with non-Writing to Read students. It would appear that participation in the Writing to Read program might be better assessed by growth in the level of writing ability/stage and reading achievement rather than by simply looking at performance on a standardized achievement measure (especially now that a direct indicator of writing ability and stage of development can be used as opposed to the indirect indicator

language achievement). Data also indicate that the rating of writing samples by two independent raters showed a high degree of consistency (88%) which adds credence to a possible emphasis on the use of writing ability as an indicator of success as opposed to merely considering performance on an achievement test.

Writing to Read Teachers reported that the Writing-To-Read Program had improved the writing skills of the students and had trained them to use the typewriter and process writing correctly. Students made significant gains in the quality, length and level of writing products across the year. Teachers also were satisfied with the format and the philosophy behind the program.

In general, the greatest progress is being made in writing ability across grade levels when students are participants in the Writing to Read program. Achievement gains as noted by the Metropolitan Achievement Test were significant in reading for Writing to Read participants in kindergarten and not-significant for first grade students. Differences in emphasis on CBC skills from kindergarten to first grade and lack of curriculum correlation between the Writing to Read program and the reading and English curricula, as well as conflicts as to what should be taught, are likely sources of differences in instruction and student achievement at grade one. Both the outside consultant and the evaluator agree that a need exists for articulation and correlation relative to the Writing to Read program and the CBC in reading and writing.

Recommendations

Draft copies of the evaluation report were delivered to Supervisors, Principals and Teachers, who were selected by the evaluator, for persual. Representatives of the group that reviewed the report were invited to attend a meeting held at Young Elementary School to generate recommendations based on the findings of the evaluation report. Among the eighteen persons attending the meeting were the Supervising Directors of English and Reading; the Assistant Director of Reading; two Regional Supervisors; two Principals from schools involved in the study (one with Writing to Read and one without); one Early Childhood Peer Assistant Teacher; and five Teachers (three Teachers from schools with Writing to Read and two without). Attending from the Writing to Read program were the Coordinator, the Consultant and the two Resource Teachers.

The following Recommendations were generated based on the findings of the evaluation report.

1. The relationship between the instructional skills and activities provided through the Writing to Read program and the skills outlined in the Competency Based Curriculum needs to be articulated to instructional personnel using the Writing to Read program.

   Presently, achievement in the Writing to Read program as it is measured by standardized achievement instruments indicates no difference exists between the performance of Writing to Read and comparison group first grade students. Persons generating this recommendation at the Young School Meeting indicated one of the reasons for the lack of difference is that some Principals and Teachers involved with Writing to Read experience difficulty understanding the relationship between the CBC skills and objectives and the objectives of the Writing to Read program. They see the two as unrelated rather than as complementary programs. Since Teachers are evaluated in part based on their ability to progress through the CBC, they tend to emphasize skills on the CBC checklist (especially since promotion is based on student progress on CBC mathematics and reading objectives. Some felt that the promotion standard should be based on performance in mathematics, reading and writing). It would follow that Writing to Read first grade student performance on achievement measures would not be different from comparison students if the materials and training provided to participating first grade Teachers is not being fully implemented. The participants attending the Young School Meeting recommended that staff development be provided for Principals and Teachers which demonstrates how the Writing to Read program reinforces CBC skills and which provides strategies for incorporating Writing to Read activities into the skills and objectives provided by the CBC without limiting instructional opportunity in other subject areas.

2. Articulation and collaboration needs to be structured and reinforced between the Writing to Read program and the English and Reading Departments to foster cohesiveness among the three programs.

   More articulation needs to take place between the Writing to Read program and the English Department. The Writing to Read program staff has done an outstanding job of enhancing the writing development of kindergarten and first grade students that is being recognized by educators across the country. With the onset of the Writing Initiative, every elementary school Teacher could benefit from learning how to apply the Writing Scale developed by the Writing to Read program in DCPS to guage the ability and level of writing development of young children. Collaboration and articulation would also aid both groups in spreading the word to elementary schools through presentations and workshops with system Writing Coordinators, Principals and Teachers. The English Department has a network already in place that would facilitate this (eg., Writing Coordinators, Language Arts Resource Teachers, the Writing Initiative Newsletter, etc.). In order to promote cohesiveness between activities related to the Writing to Read program and the writing curriculum, teachers presently implementing the Writing to Read program should be considered when forming curriculum development teams.

   The Writing to Read program and the Reading Department have worked together previously to correlate the activities contained in the Writing to Read program with the CBC reading objectives. The two should work together to share the components of the Writing to Read program with Reading Resource Teachers and other appropriate personnel in various forums provided by the Writing to Read program and the Reading Department. In addition, Writing to Read program activities and objectives should be reviewed in light of recent modifications in the reading curriculum.

3. An awareness strategy needs to be established to share information on the skills developed by the Writing to Read program across schools and primary grade levels.

   This recommendation encourages more frequent articulation and collaboration between kindergarten and first grade Writing to Read Teachers in each school as well as planning and sharing with Teachers in grades two through six (with strategies provided for reinforcing learned writing skills). A concerted effort should also be provided for Teachers experienced with the Writing to Read program to share with new program participants in formal and informal settings so new participants approach the program with realistic expectations. This information should also be shared in forums involving non-participating schools, Principals and Supervisors so knowledge of the Writing to Read program can be expanded. The ultimate goal of this recommendation is to develop a mechanism to share and build upon the skills developed by the Writing to Read program with others.

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